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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,582	12/15/2000	Steven Teig	SPLX.P0005	3530

23349 7590 05/21/2003

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EXAMINER

CHU, CHRIS C

ART UNIT PAPER NUMBER

2815

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/739,582

Applicant(s)

TEIG ET AL.

Examiner

Chris C. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16 - 25, 27 - 37 and 39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16 - 25, 27 - 37 and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Request for Continued Examination***

1. A request for continued examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 3, 2003 has been entered. An action on the RCE follows.

2. Applicant's amendment filed on March 3, 2003 has been received and entered in the case.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

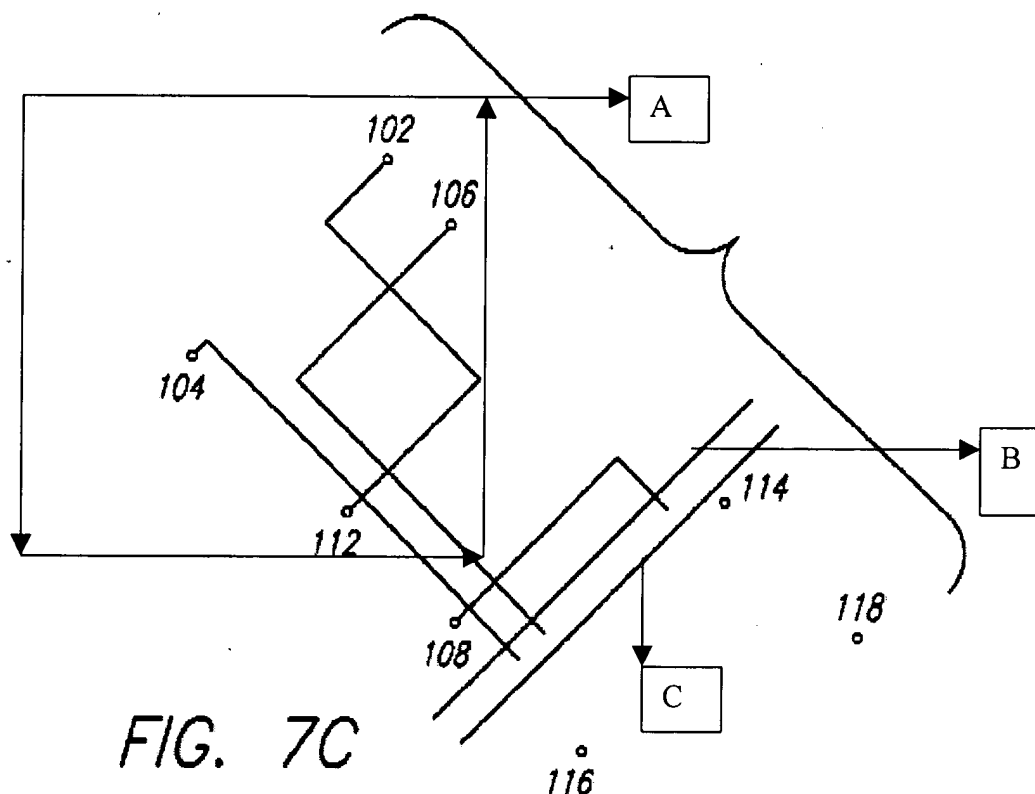
4. Claims 16 ~ 23 and 28 ~ 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al.

Regarding claim 16, Jones et al. discloses in Fig. 7C an integrated circuit comprising:

- a plurality of metal layers (102, 104 106, etc.) comprising a plurality of conductors to interconnect components in an integrated circuit, said metal layers comprising:
  - a first metal layer group (102, 104 and 106) comprising at least one metal layer, said metal layer in said first metal layer group comprising at least one self contained layout section (A in Fig. 7C in the next page) comprising conductors deposited in a preferred Manhattan direction (106), wherein a preferred direction defines a direction, relative to the integrated circuit boundaries, for at least fifty percent of conductors, and said self contained layout section comprising a routing of conductors developed independent (104) from routing of conductors for circuits outside said self contained layout section in said integrated circuit.; and
  - a second metal layer group (B and C) comprising at least one metal layer, said metal layer in said second metal layer group comprising a plurality of conductors deposited in a preferred diagonal direction in a portion of the metal layer directly adjacent to said portion of said metal layer for said self contained layout section, and wherein conductors for said second metal layer group are routed independent from routing of conductors for said self contained layout section.

Further, the limitation “whereby said preferred Manhattan direction conductors of said self contained layer within said first metal group do not electrically cross-couple with conductors of said second metal layer group regardless of whether said self contained layout conductors are

deposited in either a horizontal or vertical direction” has been held that the functional “whereby” statement does not define any structure and accordingly can not serve to distinguish. In re Mason, 114 USPQ 127, 44 CCPA 937 (1957).



Regarding claim 28, the method steps are disclosed by Jones et al. for the same reasons provided above in the device claim 16.

Regarding claims 17 and 29, Jones et al. discloses in Fig. 7C said self contained layout section being independent of a layout for said second metal layer group.

Regarding claims 18 and 30, Jones et al. discloses in Fig. 7C a plurality of self contained layout sections in said first metal layer.

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Regarding claims 19 and 31, Jones et al. discloses in Fig. 7C at least one of said self contained layout sections comprising a wiring direction perpendicular to a wiring direction of a second one of said self contained layout sections.

Regarding claims 20 and 32, Jones et al. discloses in Fig. 7C said self contained layout section comprising an entire one of said metal layer in said first metal layer group.

Regarding claims 21 and 33, Jones et al. discloses in Fig. 7C said first metal layer group comprising three metal layers.

Regarding claims 22 and 34, Jones et al. discloses in Fig. 7C said three metal layers each comprising conductors deposited in preferred Manhattan directions, wherein said first metal layer comprises a preferred Manhattan direction complementary of a preferred Manhattan direction of said second metal layer; and said second metal layer comprises a preferred Manhattan direction complementary of a preferred Manhattan direction of said third metal layer.

Regarding claims 23 and 35, Jones et al. discloses in Fig. 7C said diagonal direction comprising a direction 45 degrees relative to said integrated circuit boundaries.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 24 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. in view of Funaki et al.

Jones et al. discloses the claimed invention except for said diagonal direction comprising a direction 60 degree relative to said integrated circuit boundaries. However, Funaki et al. discloses said diagonal direction comprising a direction 60 degrees relative to said integrated circuit boundaries (read column 12, lines 1 ~ 45). Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Jones et al. by including the 60 degree for diagonal direction as taught by Funaki et al. The ordinary artisan would have been motivated to modify Jones et al. in the manner described above for at least the purpose of decreasing resistance in contact regions.

7. Claims 25, 27, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. in view of Igarashi et al.

Regarding claims 25 and 37, Jones et al. discloses the claimed invention except for said self contained layout comprising a layout for a memory block. However, Igarashi et al. discloses in column 5, lines 38 ~ 43 and Fig. 25A a self contained layout comprising a layout for a memory block. Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Jones et al. by using a memory block as taught by Igarashi et al. The ordinary artisan would have been motivated to modify Jones et al. in the manner described above for at least the purpose of providing a PLL to the flip-flops (column 20, line 28).

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Regarding claims 27 and 39, Igarashi et al. discloses in Fig. 25A said self contained layout section (SRAM) comprising a section less than 10 percent of the entire area of said metal layer.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 16 and 28 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Toyonaga et al. discloses a method for optimizing component placement in designing a semiconductor device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu  
Examiner  
Art Unit 2815

c.c.  
May 14, 2003

  
**ALLAN R. WILSON**  
**PRIMARY EXAMINER**